

REMARKS

The application includes claims 1-5 in which claim 5 has been withdrawn. Claims 1-4 are rejected. With this paper, claim 1 is amended. The support for the amendment can be found in page 7, lines 3 to 6 of the originally filed specification.

**Claim Rejections under 35 USC §103**

Claim 1-4 are rejected under 35 USC §103(a) as being unpatentable over Japanese document P3075431 (referred to as JP-431 hereinafter) in view of either of Sanada *et al* (US 4,893,148, referred to as Sanada hereinafter) or Japanese Kokai 62-101,421 (referred to as JP-421 hereinafter) or either of Sanada or JP-421 in view of JP-431.

The present invention as in claim 1 is a process of making a roll of polyvinyl alcohol (PVA) film. The roll of the PVA film is made by forming a PVA film from a solution of a PVA resin, and rolling up the PVA film around a cylindrical core made of a metallic material (as currently amended). The surface hardness of the roll of film is adjusted to a Shore A hardness of 60 to 95 measured according to JIS K 6301 under conditions of 25°C and 55% RH.

The invention as described in the instant application is actually carried out in a large scale manufacturing setting and is commercially successful. The PVA film of the present invention is used for forming a polarizing film for use in liquid crystal display (LCD) devices such as personal computers and large-size TVs. In recent years, the demand for the LCD device has increased substantially. Therefore, the demand for the PVA polarizing film also increased substantially.

Take the large-size LCD TVs for example, the number of shipment of the large size LCD TVs was 3,150,000 in the first quarter of 2005, which is an increase of 125% from the same quarter of the previous year. The sales of the large-size LCD TVs were 4.1 billion US dollars, which is an increase of 144% from the same period of the previous year. These numbers represent a remarkable growth (Source: US Display Search, research results

regarding the market for LCDs having a size of at least 10 inches in the first quarter of 2005 was announced in June 13, 2005).

As described above, because the PVA film of the present invention is an essential part in manufacturing of the LCD devices, the present invention has a very significant importance.

In rejecting claims 1-4, the Examiner asserts that "it would have been obvious to one of ordinary skill in the art at the time of invention to have modified the method of JP-431 as taught by either of Sanada or JP-421 to ensure that the film stays flat and unwrinkled." The Applicant respectfully disagrees with this assertion.

JP-431 discloses a method of packing a PVA film that comprises winding the film around a paper pipe core to form a roll and covering the roll with a moisture-impermeable film of  $1\text{g/m}^2$ -24 hrs, wherein the PVA film has a water content of 5% or less. JP-431 neither describes nor suggests a surface hardness of the PVA film roll. The core for winding up the PVA film is a paper pipe core, not a core made of a metallic material. Using a core made of a metallic material is not disclosed.

Sanada discloses a dry silver salt roll film for use in a rotary type microphotography. The film is stored in the form of a roll and the roll has a certain tightness or hardness range. The film is a layer of photosensitive material deposited on a base film, and the material for the base film is preferably a polyester film (col. 6, line 62). JP-421 discloses a process for treating a polyethylene terephthalate (PET, one kind of polyester) film. It discloses a winding hardness of about 88 to 96 by JIS K 6301. Although these two references all mention surface hardness of the film rolls, none of the films they describe is a PVA film.

The Examiner further asserts that: "The methods taught in Sanada *et al* and JP-421 are submitted to have been equally viable with the instant PVA as well as the disclosed PET and other plastic films." The Applicant respectfully disagrees with this assertion.

It is known in the art that, typically, hygroscopicity (the ability of absorbing moisture, the higher the number, the easier it is to absorb the moisture) of a PVA film is 5.0%, while that of a PET film is 0.2%. This means, in normal environment, the PVA film absorbs

10 times of the moisture the PET film absorbs. Because of the high hygroscopicity, the surface of the PVA film is very sensitive to the moisture and very hard to control. Hence, PVA films are difficult to wind smoothly around a core, and winding quality of the PVA film rolls can be easily affected by the humidity and the material of the core. Since PVA and PET are completely different materials in terms of winding property, the methods taught in Sanada and JP-421, which only relate to polyester films, are not equally viable with the PVA film.

The peculiar properties of the PVA film make it extremely difficult in obtaining a roll of film that is flat, wrinkle-free, and suitable for making polarizing films. A polarizing film obtained from a PVA film prepared by the process of the present invention has an excellent polarizing property, since uneven stretch does not occur in the stretching step in the production of the polarizing films. Combining either Sanada or JP-421 with the primary reference JP-431 would not achieve the excellent effect of the present invention.

In conclusion, it is the Applicant's position that JP-431 and Sanada or JP-421 cannot be combined, because the PVA film in JP-431 differs from the other films in Sanada or JP-421 in that the film properties are completely different. Even if the references were combined, they still do not teach all the limitations of claim 1, *i.e.* a process of making a roll of PVA film comprising forming a PVA film from a solution of a PVA resin, and rolling up the PVA film around a cylindrical core made of a metallic material, wherein the surface hardness of the roll of film is 60 to 95 under conditions of 25°C and 55% RH.

Based on the foregoing, claim 1 is believed to be patentable in view of the cited references. Applicant respectfully requests the rejections of claim 1 under 35 USC 103(a) be reconsidered and withdrawn.

Claims 2-4 depend from claim 1. Since claim 1 is believed to be patentable, claims 2-4 are also believed to be patentable. Applicant respectfully requests the rejections of claims 2-4 be reconsidered and withdrawn.

**Request for an Interview with the Examiner**

The undersigned Applicant's agent respectfully requests a face-to-face interview with the Examiner to discuss the instant application after the filing of the Request for Continued Examination and before issuance of a subsequent Office Action. The undersigned Applicant's agent will call the Examiner for arranging the interview but it is appreciated if the Examiner calls on his own initiative regarding the interview.

**Conclusion**

For all the foregoing reasons, it is believed that all the remaining claims of the instant application are patentable, and their passage to issue is earnestly solicited. Applicant's agent urges the Examiner to call to discuss the present response if anything in the present response is unclear or unpersuasive.

Date: 12/28/06

Respectfully submitted,



---

Shiming Wu  
Agent for the Applicant  
Registration No. 56,885

WARE, FRESSOLA, VAN DER SLUYS  
& ADOLPHSON LLP  
755 Main Street, P.O. Box 224  
Monroe, Connecticut 06468  
(203) 261-1234